AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of the claims in the application.

Listing of Claims:

1. (Currently Amended) A power amplifier module comprising:

an amplifier; and

a control circuit that supplies the amplifier with an idling current that controls the output power of the amplifier,

wherein the control circuit receives an input control voltage and is constructed such that the idling current is defined as an exponential function of the input control voltage.

2. (Previously Presented) The power amplifier module according to claim 1, wherein the control circuit includes:

a circuit that converts the input control voltage into current;

a circuit that generates a reference voltage from the current into which the input control voltage has been

converted and sets a gradient of voltage that changes in proportion to the input control voltage; and

a circuit that converts the voltage into current that changes exponentially relative to the input control voltage.

3. (Previously Presented) The power amplifier module according to claim 1, wherein the amplifier is a complex comprising a plurality of stages of amplifiers connected in tandem, and wherein the control circuit is a complex comprising a plurality of circuits that receive the control input voltage in common and supply respective idling currents behaving as aforesaid to the plurality of stages of amplifiers.

4. (Previously Presented) The power amplifier module according to claim 3, wherein a common circuit is formed, comprising a circuit that converts the input control voltage into current, a circuit that generates a reference voltage from the current into which the input control voltage has been converted and sets a gradient of voltage that changes in proportion to the input control voltage, and a circuit that converts the voltage into current that

changes exponentially relative to the input control voltage, and

wherein a plurality of circuits connected to said common circuit supply the respective idling currents to the plurality of stages of amplifiers based on the current that changes exponentially relative to the input control voltage.

5. (Previously Presented) A power amplifier module comprising:

an amplifier; and

a control circuit that supplies the amplifier with an idling current that controls the output power of the amplifier;

wherein the control circuit receives an input control voltage and makes the idling current behave so as to exponentially change, relative to the input control voltage,

wherein the amplifier is fabricated with GaAsHBTs packaged on a semiconductor integrated circuit including a pair of an input transistor and an output transistor, the input transistor carrying the idling current and forming a

current mirror circuit in conjunction with the output transistor, and

wherein the control circuit is fabricated with Si transistors or GaAsHBTs packaged on a semiconductor integrated circuit.

6. (Previously Presented) A power amplifier module comprising:

an amplifier; and

a control circuit that supplies the amplifier with an idling current that controls the output power of the amplifier,

wherein the control circuit receives an input control voltage and makes the idling current behave so as to exponentially change, relative to the input control voltage,

wherein the amplifier is fabricated with SiGeHBTs or Si bipolar transistors packaged on a semiconductor integrated circuit including a pair of an input transistor and an output transistor, the input transistor carrying the idling current and forming a current mirror circuit in conjunction with the output transistor, and

wherein the control circuit is fabricated with SiGeHBTs or Si bipolar transistors packaged on a semiconductor integrated circuit.

7. (Previously Presented) The power amplifier module according to claim 1,

wherein the power amplifier module further includes a circuit that limits the idling current once the input control voltage has reached a predetermined level.

8. (Previously Presented) The power amplifier module according to claim 1,

wherein the power amplifier module further includes a circuit by which a temperature characteristic of the idling current can be set optionally.

9. (Previously Presented) The power amplifier module according to claim 2,

wherein the amplifier is a complex comprising a plurality of stages of amplifiers connected in tandem, and

wherein the control circuit is a complex comprising a plurality of circuits that receive the control input voltage in common and supply respective idling currents

behaving as aforesaid to the plurality of stages of amplifiers.

10. (Previously Presented) The power amplifier module according to claim 9, wherein a common circuit is formed, comprising the circuit that converts the input control voltage into current, the circuit that generates a reference voltage from the current into which the input control voltage has been converted and sets a gradient of voltage that changes in proportion to the input control voltage, and the circuit that converts the voltage into the current that changes exponentially relative to the input control voltage,

wherein a plurality of circuits connected to said common circuit supply the respective idling currents to the plurality of stages of amplifiers based on the current that changes exponentially relative to the input control voltage.

11. (Original) The power amplifier module according to claim 2, wherein the amplifier is fabricated with GaAsHBTs packaged on a semiconductor integrated circuit including a pair of an input transistor and an output

transistor, the input transistor carrying the idling current and forming a current mirror circuit in conjunction with the output transistor, and

wherein the control circuit is fabricated with Si transistors or GaAsHBTs packaged on a semiconductor integrated circuit.

12. (Original) The power amplifier module according to claim 2, wherein the amplifier is fabricated with SiGeHBTs or Si bipolar transistors packaged on a semiconductor integrated circuit including a pair of an input transistor and an output transistor, the input transistor carrying the idling current and forming a current mirror circuit in conjunction with the output transistor, and

wherein the control circuit is fabricated with SiGeHBTs or Si bipolar transistors packaged on a semiconductor integrated circuit.

13. (Previously Presented) The power amplifier module according to claim 3, wherein the power amplifier module further includes a circuit that limits the idling current

once the input control voltage has reached a predetermined level.

14. (Original) The power amplifier module according to claim 2, wherein the power amplifier module further includes a circuit by which the temperature characteristic of the idling current can be set optionally.

15. (Previously Presented) The power amplifier module according to claim 5,

wherein the control circuit includes:

a circuit that converts the input control voltage into current;

a circuit that generates a reference voltage from the current into which the input control voltage has been converted and sets a gradient of voltage that changes in proportion to the input control voltage; and

a circuit that converts the voltage into the idling current that changes exponentially.

16. (Previously Presented) The power amplifier module according to claim 6,

wherein the control circuit includes:

a circuit that converts the input control voltage into current;

a circuit that generates a reference voltage from the current into which the input control voltage has been converted and sets a gradient of voltage that changes in proportion to the input control voltage; and

a circuit that converts the voltage into the idling current that changes exponentially.